

Newsletter for Birdwatchers

VOL. XXX

No.5 &6

May - June 1990





The Newsletter of the Convention on Wetlands of International Importance Especially as Waterfowl Habitat

Focus on Southern America

The wetlands of St. Lucia

For its small size, St. Lucia has a rich and diverse wetland system, and its wetlands, though small by continental standards, are nonetheless representative of most wetland ecosystems. They include mangroves (the most common wetlands), freshwater lakes ("sink holes," particularly important for birds, e.g., at Rabot); dry lakes, forested wetlands (e.g., at Desrache) and coastal wetlands (mud flats, coastal flats, sea grass beds). Another type of wetland, important for its diverse flora and rich avifauna, is the dry-stream thicket. Although not a true wetland, it has some characteristics found in a wetland system (i.e., wooded thicket harbouring many birds found in wetlands, high underground water table and hence lush vegetation, even when the stream stops flowing).

St. Lucia once had a total of some 330 ha of wetlands, which have now been reduced to 200 ha. Development projects are seriously threatening the wetlands: drainage, filling and reclamation, wood clearing, charcoal making and garbage dumping severely degrade and destroy wetlands; and chemical spraying affects the wetlands' equilibrium and wildlife. For instance, the Belleplaine wetland, previously a healthy and herbaceous swamp, has been cleared and drained for agriculture. The forested wetlands of Desraches, an important source of water for neighbouring river systems, are being cleared for banana cultivation. Deforestation is the greatest single cause of lakes drying out in St. Lucia, by lowering the water table and increasing evaporation.

High loss of wetland habitats has had a serious impact on the populations of birds and might have a disastrous impact on fisheries.

This trend can be reversed. It is recommended that a selection of the important habitats be made, to save representative examples of all wetland types in St. Lucia. The areas identified should be acquired and legislation for their management and protection enacted. Sanctuaries, including artificial wetlands, should be created to protect the wildlife. A twofold solution is therefore recommended, whereby those wetlands deemed worthy of protection are given it and those areas deemed suitable for wetland habitats are acquired for wildlife sanctuaries.

(Summary of an article by Robert J. Devaux, published in *News and Views*, a Journal of the St. Lucia's Naturalists' Society, October-December 1988)

Wetlands in Argentina

Argentina has wide variety of wetlands of international importance, several of which are included in the country's national park system. Argentina was an observer in the Groningen conference in 1984, when one of the recommendations referred to conservation of the Rio Pilcomayo National Park. The Ramsar Bureau has received reports that Argentina may soon join the Convention. It seems that the technical ministries and the Ministry of Foreign Affairs have carried out the necessary tasks, and that the matter will be considered in the Senate in 1989.

Meanwhile, many bodies are active in wetland conservation and research. The Fundación Vida Silvestre has supported a number of conservation initiatives, and GESER (Grupo de Estudios Sobre Ecología Regional) has sent the Ramsar Bureau several reports on wetland research, relating specially to the Pantanal and Chaco.

Number 4, September 1989

New national parks in Panama

Although Panama is not a Contracting Party to the Convention, conservation of wetlands is none the less proceeding in that country: two new national parks have recently been established there. The Amistad International Park, on the Panama-Costa Rica border, protects more than 200 000 hectares of tropical forest, while Bastimentos National Marine Park covers 14 500 ha of coral reef, mangroves and islands in the Bay of Almirante (province of Bocas del Toro). The National Marine Park of Bastimentos is one of the most important marine habitats in Panama and is listed in the *Directory of Neotropical Wetlands* as Bocas del Toro Archipelago. The extensive coral reef within the park harbours important algae banks, which serve as food for several species of turtles that nest on neighbouring beaches.

The immediate protection and management of these parks will entail demarcation of boundaries, patrolling, training and equipping of park rangers, assistance to local communities and environmental education.

From a press release by
ANCON, the National Association for
the Conservation of Nature of Panama

Major new Brazilian Foundation

Brazil has more biological diversity than almost any country on earth. Its resources include the world's largest freshwater wetland, the Pantanal of Mato Grosso. Funatura is a non-profit Brazilian conservation organization founded to strengthen the role of the private sector in protecting Brazil's rich biological diversity. Its board of directors and scientific and economic advisory councils include many well-known Brazilian conservationists.

Funatura's address: PO Box 02-0186 — CEP 70 001 Brasília DF

Strengthening of conservation measures at three Ramsar sites in Suriname

On 4 March 1989, three of Suriname's wetlands were designated as Western Hemisphere Shorebird Reserves. Following an agreement with the Canadian Wildlife Service, the Coppename River Mouth Nature Reserve (12 000 ha) and the Wia-Wia Nature Reserve (36 000 ha) were twinned with the Mary's Point section of the Shepody National Wildlife Area (1200 ha) and Shepody Bay (12 000 ha) in New Brunswick, Canada. All three areas are Ramsar sites. The Bigi Pan multiple-use management area in Suriname was also added to the twin reserves. Twinning of these ecologically important areas is a first step toward closer cooperation between the Suriname Forest Service and the Canadian Wildlife Service.

At the same time, the action plan for conservation in Suriname (drafted by WWF-USA, the Foundation for Nature Preservation in Suriname [STINASU] and the Suriname Forest Service) was launched.

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EDITORIAL

World Environment Day 5th June 1990

I was asked to give a talk on the subject of Birds as Indicators of Environmental Quality. I made the point that for four reasons birds can become excellent monitors of the environment. Firstly, they are very visible, and the absence or presence of any species can be immediately noticed. Secondly, they are found everywhere, and there is not a square mile of Indian territory without birds. Thirdly, because of their fast metabolism they absorb pollution sooner than humans and can act as an early warning system. Finally, since each species of bird has strong links with a particular habitat, the absence of a species would indicate that the particular habitat/ecosystem/ecotone was disappearing.

I suggested that a grid of say 100 km sq. should be established for the country, within which all species of breeding birds should be identified. The advantage would be that any deterioration of the habitat would be immediately noticed and could be brought to the attention of Government. Unfortunately, Smt. Maneka Gandhi could not preside over the function at the National Museum of Natural History where the meeting was held, but Deputy Minister, Smt Usha Sinha, who presided, seemed to be interested in the proposal. I would welcome comments from readers.

The British have produced *The Atlas of Breeding Birds in Britain and Ireland* on the basis of a 10 sq.km grid. Distribution maps are given for all but 11 of the 229 birds breeding within these limits. The survey was carried out between 1968-72, and 10,000 bird watchers took part. Every part of Britain and Ireland was visited, each of the 3862 ten-km squares being covered during the five years. Has our *Newsletter* the energy and the will to make a modest beginning in this direction?

Birds of Kerala

In response to Andrew Robertson's notes on Thekkady, V Santharam (68 Santhome High Road, Madras 600 028) says: I was surprised to read that cormorants have never been recorded nesting at Periyar. On my last visit to Thekkady between 23 and 27 October 1989, I was able to see some nests of Little Cormorants, and at least one of the Darter. The nests were placed in the forks of the dead trees.

C Shashikumar and several others have sent an appeal for information on the birds of Kerala. Since 1969 when Dr Salim Ali's *Birds of Kerala* was published, various species of birds not published in that book have been seen in the State by birdwatchers. Those in a position to contribute useful informations should ask for the data sheet from C Shashikumar, 9 Subhash Nagar, Cannanore 670 002.

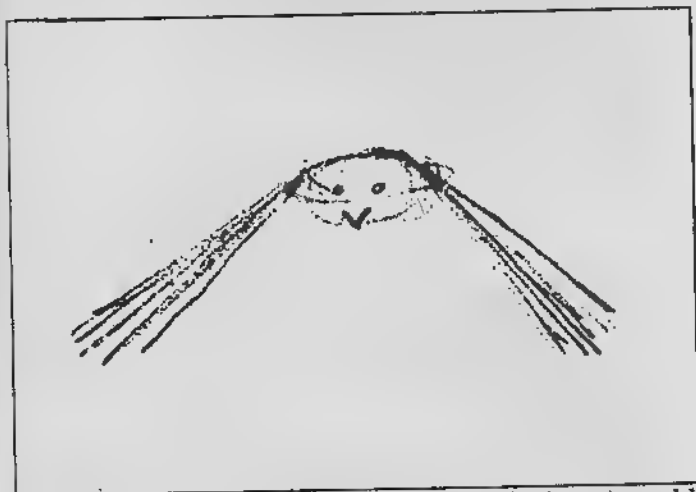
Incidentally, Andrew Robertson wonders if anyone can identify this raptor: April 6, Naraikkadu. Sitting on David's



The unidentified raptor at Naraikkadu

Rock (c 3200') at 10.00 am., we spotted a pair of raptors soaring slightly higher than us above the valley to the west. Their most distinctive feature which we both instantly saw was a bright white rump. They were larger than shikras, smaller than a buzzard, with a wing shape and pattern not unlike a buzzard - broad and rounded with a pattern of parallel streaks. The birds made no sound during the 5 minutes they were in view. The wing and underbody were not contrasted; the underparts off-white heavily streaked or barred with brown; the back was a richer brown; the bill appeared pale. The very distinctive rump patch, seeming to stretch round the sides of the upper tail and visible from all angles in flight, was almost fluffy. Tail was dark, perhaps barred and possibly with a white tip.

Other than the unmistakable pure white rump their most distinctive feature was in flight: every so often one



bird (the other was now lower down over the forest) would almost stop in mid-flight and flutter its wings 3-10 times in a sort of half-hearted hover lasting no more than 2 seconds. While doing this it lowered its wings and held them about 45° below horizontal.

The International Council for Bird Preservation

The ICBP is a federation of national (and some international) organisations concerned about the conservation, management, and wise utilisation of wild birds and their habitats. Birds, according to the ICBP, are of great value for a number of scientific disciplines, and contribute considerably to the human understanding of important ecological functions and processes in the environment, as well as our knowledge of biology. S.A. Hussain of the Bombay Natural History Society (Hornbill House, Shaheed Bhagat Singh Road, Bombay 400 023) has been promoting the ICBP in India, and those of you who

are interested in becoming institutional or individual members should write to him.

Wetland habitats in Bangalore:

BK Chakrapani, Joseph George, S Sridhar, S Subramanya and several others must be congratulated on publishing a Survey of Irrigation Tanks As Wetland Habitats in the Bangalore Area. All tanks which came within a radius of 30 km of Bangalore, were studied for water quality, causes of degradation, and bird species present. There is a useful chapter on the utilisation of *Acacia nilotica* by birds, because this is a species of thorny tree which is being planted by the Forest Department around tank beds. Notes have been provided on the status of about 20 tanks, and I was sorry to see that there was no reference to Dodda-Gubbi tank with which I am very familiar. On page 23, referring to the Night Heron *Nycticorax nycticorax* it is stated "Though not even a single bird of this species has been recorded in any of the tanks censused, the species is fairly common within Bangalore city limits". Actually a couple of hundred birds roosted on a tamarind tree next to our house in Dodda-Gubbi, and it was a great sight to see and hear them flying for their night sojourn to the Dodda-Gubbi tank just 1/2 km away. I hope S Sridhar and others involved can meet the Development Commissioner, Shri Zafar Saifullah and persuade him to take the necessary ecological measures for reviving these tanks.

Use of capitals in common names of birds

Several interesting letters have come in response to the query in the previous *Newsletter*. At the moment, I am just reproducing the bare gist of the correspondence. PT Thomas (500 CMH Rd, 1st Stage, Indiranagar, Bangalore 560 038): I do not agree that avoiding capital letters is a solution to the problem of non-standardisation of styles in the writing of the names. For one thing, the capital letter is unavoidable in certain words that form part of the full name because such words, being themselves proper nouns, or inflections of proper nouns, must necessarily be written with their initial letters in capital. You have supplied an example yourself, if unwittingly, in 'great Indian bustard' (not great indian bustard). Sudhakar Marathe (Department of English, University of Hyderabad, Hyderabad 500 134) says: In my opinion it is a most useful, effective, and satisfying system to capitalise the first letters of birds in the common names of birds. Several others, H Daniel Wesley and TV Jose among them, support the use of capital letters in common names. Joseph George had written to me earlier that we should stick to the traditional practice of using capitals. So, I request our Publisher, S Sridhar to follow the spelling in the Book of Indian Birds by Salim Ali.

MYSTERIOUS DISAPPEARANCE OF PAINTED STORKS FROM DELHI ZOO HERONRIES AND ABRUPT TERMINATION OF THEIR BREEDING

ABDUL JAMIL URFI, School of Environmental Sciences, Jawaharlal Nehru University, Delhi
(For correspondence : A-270, Jamia Nagar, Okhla, New Delhi 110 025)

A wild population of Painted Storks *Mycteria leucocephala* has established itself in the natural heronries of Delhi Zoo and since 1960 these large, elegant birds have been regularly breeding here. By August each year these Storks start flocking to the zoo and stay on till March. During this period they stake claim over nesting territories on *Prosopis* trees in the zoo ponds, build nests and rear their chicks. (More details are given in my recent article (Urfi, 1989, in SANCTUARY). Stork breeding in the zoo is largely governed by availability of fish in the local environment; fish spawning and recruitment in turn being dependent upon the monsoon rains. To quote Dr J.H. Desai (1974), a previous Zoo Director who studied these Storks in considerable depth, a colony of about 100 nests would consume approximately 24 metric tonnes of fish in the breeding season most of it being obtained from water channels, ponds and marshy areas of the Delhi Zoological Park and river Yamuna."

In 1989 since the rains were quite normal over much of Northern India, a large contingent of Painted Storks (approximately 500) landed in the zoo heronries as expected. Several of them built nests and even laid eggs. But, somewhere around 25th September 1989 these birds suddenly deserted nests and flew away. Thereafter, between September 1989 to March 1990 some Storks did trickle into the zoo but virtually none tried to re-establish breeding. For all practical purposes the season 1989-90 can therefore be regarded as one of 'zero recruitment' for the Painted Stork population of the Delhi Zoo.

This phenomenon of a wild population of Painted Storks abruptly terminating their breeding, in a seemingly 'density independent' fashion at a more or less traditional site, is rather mysterious. The causes for this phenomenon must be 1) Ecological, 2) Pollution related and/or 3) Human disturbance related. A possible ecological factor, especially in the case of colonial species like Painted Storks could be outbreak of an epidemic but since no dead birds were ever found lying about this could be ruled out straightaway.

The single most important ecological factor is of course food. In this context food, or more appropriately fish, is Yamuna, the major feeding ground for these Storks.

Perhaps, a sudden increase in pollution levels in Yamuna during September 89 caused a large scale mortality of fishes. The birds sensed this somehow and immediately deserted nests. The zoo ponds are fed with partially treated water taken directly from the river. So perhaps, as some of the zoo officials maintain, the foul smell emanating from the water in the vicinity of their nests disgusted the birds.

We have no direct evidence that river Yamuna which is normally quite polluted was relatively more polluted during September. Even if it were, it seems quite unlikely that pollution in the immediate vicinity of such large sized birds like Painted Storks would affect them directly. From the viewpoint of food also, there is no evidence that fishes died in large numbers during this period in Yamuna; I remember seeing fish eating birds like cormorants and darters in usual numbers at Okhla Barrage as well as at other sites. Moreover, pollution has built up gradually in the Yamuna and one can assume that birds and other animals have adjusted in their own way to it. Thus, pollution - either directly or through affecting the food chain - could not have played a major role in Painted Stork disappearance.

The Human Disturbance factor would mean that when Painted Storks had settled down to breed somebody fired a gun at close range, loudly shooed away the birds or something similar. The birds got so scared that they decided to abandon breeding totally. Is it likely? I feel that much would depend upon the nature and duration of disturbance. However, there is an interesting point here which brings us to the crux of the zoo mystery. Around 25th September, the date on which all the Storks reportedly flew away, a mammoth crowd of several lakh people came to Delhi from the neighbouring state Haryana. The occasion was celebrations of Mr Devi Lal's birthday (erstwhile chief minister of Haryana). According to the zoo keepers, gardeners and vendors, a large crowd of these rallyists visited the zoo on this date and the next day and created havoc there shouting, pelting stones and teasing the animals. Is it possible then that these people caused the Painted Storks of Delhi zoo to terminate their breeding?

One possibility which I have not considered seriously is the idea from theoretical ecologists that sometimes animal populations will exhibit periodic fluctuations over long

time periods. Such examples as the periodic fluctuation in American Lynx populations is a case in point. Clearly, invoking such a fanciful concept would be unwarranted in this case because we have no long term data from the Delhi zoo to test such theories. By virtue of the fact that the Painted Stork disappearance was abrupt (Fig.1) I suspect that an extrinsic agent like human disturbance could have caused it.

Even though it appears that it was human factor which caused the Storks to abruptly terminate their breeding a question immediately arises. Given their strong drive for breeding, due to endocrinological reasons, why did the birds not return back to resume breeding after a few days or weeks when the disturbance subsided and things became peaceful. Due to such reason(s) I consider the zoo phenomenon as mysterious.

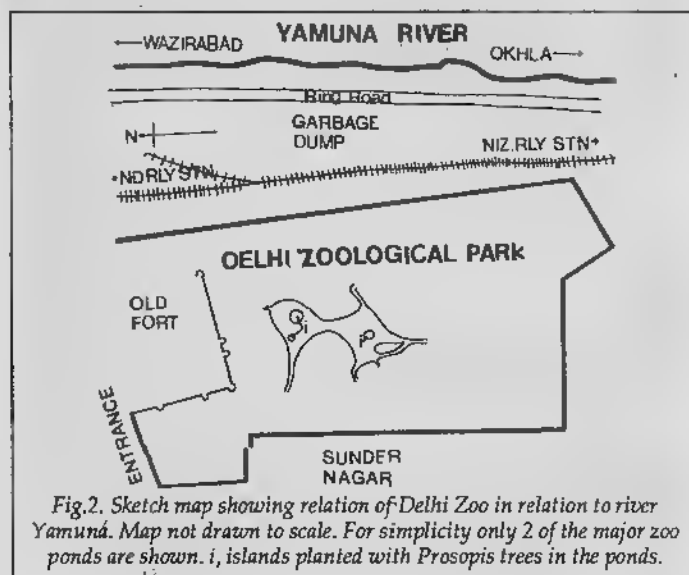
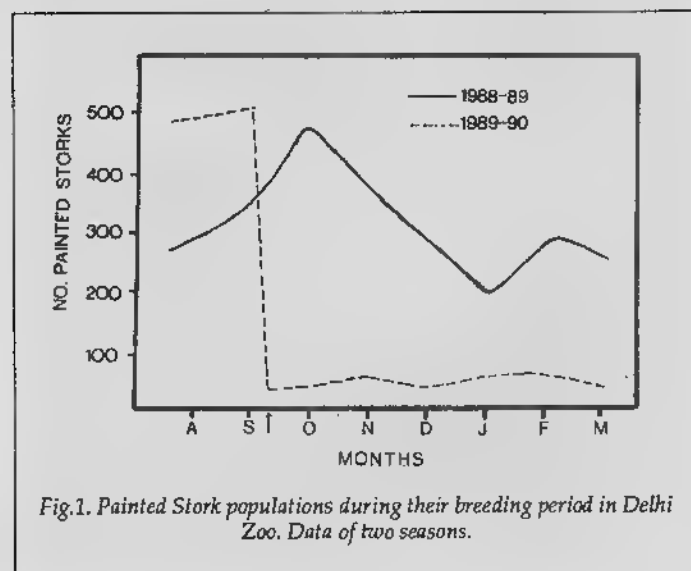
Does it really matter whether Painted Storks continue to breed normally in the Delhi zoo Heronries?

Painted Storks are not endangered birds; because they find a suitable breeding habitat in Delhi zoo they exploit it opportunistically and in a certain sense may not be a formal responsibility of this zoo. However, the answer to the above question is in the affirmative on two accounts. Firstly, this wild population of Painted Storks provides us a unique opportunity to study their behaviour and ecology at closehand. Secondly and importantly, the Delhi zoo heronries are perhaps the only major breeding ground for Painted Storks in this region. I say this from personal observation and field surveys that I have done in areas around Delhi, along with some friends. Whereas Painted Storks are to be commonly encountered feeding everywhere, at none of the wetlands which we visited did we see their colonies or nests. Some of these wetlands are:

Sultanpur Bird Sanctuary, Bhrindanwas Sanctuary, Bhamesa Tal (all in Haryana), Okhla Barrage and Sekha Tal (in Delhi and Uttar Pradesh). Tilyar Lake, a popular tourist spot in Haryana did have some White Ibis nests but none of Painted Storks. It is interesting to note that even Usha Ganguli (1975) who published an authoritative record of birds of Delhi region, does not mention any other Painted Stork colony except that of the Delhi zoo. Considering her excellent and extensive coverage of bird habitats in the environs of Delhi, Usha Ganguli would surely have mentioned about another colony if it was there. Since she has mentioned only Delhi Zoo Heronries, it reinforces our impression that these are the only breeding grounds for Painted Storks within a radius of say 50 km or more around Delhi.

Considering the significance of Delhi zoo heronries for Painted Storks and other birds like cormorants, white ibis, egrets and night herons, I have a few suggestion for their management which concerned people might wish to consider.

1. During the breeding period of Painted Storks checks should be imposed upon the visitors to ensure that they do not disturb the birds. If the zoo authorities run short of hands then perhaps school or college students could be asked to volunteer as 'Honorary Wardens'.
2. The zoo authorities should, as a matter of routine, keep records of the number of storks breeding each year. If some other aspects like no. nests built and survival of brood each year are also included this information could be of tremendous value to ecologists, in a long term perspective.



3. My belief - that the Zoo heronries are the only breeding ground for Painted Storks of Delhi region should be sought to be disproved or falsified. Local birders and nature enthusiasts should fan out in areas around Delhi and keep a sharp lookout for another colony. If they disapprove my belief then it is good for these birds; if another colony cannot be located after much effort then it means we must take special care of the zoo heronries.

Large signboards inside the Delhi Zoo proudly display the nearly three decade SUCCESS STORY of Painted Stork breeding here. But due to our carelessness or neglect this story could also become a TRAGEDY. We must not allow this to happen.

ACKNOWLEDGMENTS

Several people have helped me in this work and I wish to thank them for their cooperation. They are: Sangita Gupta for field assistance and general help; Dr T.R. Rao for commenting on an earlier draft; Suresh Sharma and Raju Bhutani for their cooperation and willingness to discuss this theme.

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REQUEST FOR INFORMATION

I am interested in seeing and studying colonies of heronry birds in different parts of the country. I shall be grateful if any of the readers of the *Newsletter* could inform me about any heronry (of painted, openbill storks, egrets, ibis, cormorants, etc.) in their locality. Such information as name, species nesting, size, state, town, tehsil, village, how and when to visit it etc. would be most useful. I will be glad to receive any information and any help received will be duly acknowledged. Please send letters to my correspondence address printed above.

SOME RANDOM NOTES AND OBSERVATIONS ON THE BIRDS OF BANGALORE

V. SANTHARAM, 68, I Floor, Santhome High Road, Madras 600 028

I was in Bangalore between August 1989 and January 1990 and in this note, I have put together some of my observations. I cannot claim to have seen all of the important sites as I was not aware of many of them and the ways and means to reach them (you will appreciate this if you have tried the Public transport in Bangalore!). So my observations may even be biased due to the small sample size.

As I was based in the IISc Campus, most of my birding was done there. Contrary to my expectations (and the claims made by some), the bird-life of this well-wooded campus was disappointing both species-wise and individual-wise. Later in the season, however, the migrants appeared in good numbers and I even managed to see a Falcon (most likely the Peregrine), one afternoon. But I could not understand why there were so few resident species. I was particularly puzzled by the absence of species such as the Goldenbacked Woodpecker, Treepie, Iora and Whitebrowed Bulbul. I gather that some of these species had earlier existed here and have, in recent years, become locally extinct in the campus. One wonders why this is so as the campus still looks good enough to support these

species. Is it the isolation of the campus by rapid urbanisation which prevents emigration of birds from neighbouring areas? Or is it the proliferation of exotic plant species in the campus which may have little to offer by way of resources to the native birds? I was able to see some of these species in other sites on the outskirts of the city in the natural habitats. However, throughout my stay, I never saw any woodpeckers in Bangalore, although Goldenbacked, Blackbacked and Rufous Woodpeckers have been reported. In Madras, although it is the only species, the Goldenbacked is quite a common bird, seen even in isolated wooded campuses and also in gardens right inside the city. It would be interesting to see if Small Green Barbets compete with woodpeckers for nest-holes in the city, thus excluding them. This barbet is, incidentally, absent in Madras.

I saw my first Common Swallows in Bangalore in October (Oct.7th). Although I was on the lookout, I could not see these birds earlier. I am particularly interested in these birds as I have been consistently observing their arrival dates in Madras for the last 10 years and these birds make their appearance as early as Mid-August (and rarely,

late July). I have even written about this in one of the earlier issues of the *Newsletter*. Even this season, the birds were noticed from 24th August in Madras. The arrival dates for other migrants - Warblers, Grey Drongo, Pitta, etc., - appear to be similar in both the cities. Does the Swallow reach Madras area earlier or is it that I did not look out carefully? It would be interesting if other readers could also contribute information on the arrival dates of the Common Swallow in their regions.

Although it doesn't pertain to Bangalore, I could not resist adding the following experience at Ranganathitoo. I was visiting the sanctuary for the first time and I was fortunate to have with me Dr S. Subramanya, who knows the place very well. It was a memorable sight seeing the heronry come to life as the stars began fading and the sunlight slowly penetrated the mist. The silence of the dawn was shattered by the calls of a Peafowl. A Collared Scops Owl hooted from the trees behind us. Then there was a sudden commotion as the roosting Common Mynas called it a night and flew out. Soon the herons, egrets, ibises and openbills started flying about. The sanctuary has been described as one of the most beautiful in the country and I cannot but agree. The Cauvery flowed gently that September morning against a backdrop of a brilliant blue sky. There were rocks and islets gutting out and there was good greenery all around. Beyond were lush green fields and the gentle breeze wafted in the sweet smells of the countryside. I was lost in my own world and woke up only when I picked up (with the aid of my binoculars, of course) a pair of Great Stone Plovers, standing on a rock in the river, a good distance from the shore. Next to it was a duck - a Whistling Teal. This bird was slightly larger in size than the Stone Plover and as it moved and preened, I could see that it had paler upper tail coverts. I am not too sure but I felt it could have been the rare Large Whistling Teal. I could not get confirmation from my experienced companion as the bird had moved by the time he came. Maybe birdwatchers visiting in Ranganathitoo should keep an eye (if not both) open for this species.

If anyone is keen on studying ecology and behaviour of Wren-Warblers or Prinias, Bangalore could be selected as a study area. On a field trip to the Gaythri-Khoday Nagar scrub, we saw four species of Wren-Warblers all within a 2 km long stretch. The Ashy Wren-Warbler is perhaps the commonest, seen even in the gardens inside the city. The Indian or Plain Wren-Warbler was seen in the more open areas, in the fields and near water. The Jungle and Ashy-grey are usually seen in the scrub.

It was good to see an active and enthusiastic group of birdwatchers in Bangalore and I was fortunate in

accompanying them on a few field outings and the waterfowl counts, towards the end of my stay. I had the opportunity to see some of the Wetlands around Bangalore thanks to the waterfowl counts. It was during this that I had a close look at flocks of Barheaded Geese, numbering up to about 70 individuals. I had a good view of a Redheaded Merlin, perched on a tree, for the first time and was one among the group that recorded the Blackheaded Gull - a new addition to the Bangalore checklist. I also had brief glimpses of the Bluethroat which has been eluding me so far and was able to see a colony of Cliff Swallows, nesting under a bridge, close to one of the larger tanks near the city. All these have made my stay in Bangalore worthwhile and memorable.

I was asked by my Bangalore friends to write about the Waterfowl counts, 1990, in the Bangalore area. I guess I may not be able to do justice to this as I had been with the group only for three days whereas the counts were done for over 15 days. However, I wish to mention that I was very much impressed with the organisation and systematic way in which the work was carried out.

The participants were highly enthusiastic and hardworking. In fact, some of them applied for leave during the entire period of counts. Each tank was counted by the volunteers by going around, making note of all the waders present in the tank margin while another team stayed back on the bund, counting waterfowl and the larger, conspicuous waterbirds. Covering up to 6-7 tanks a day, the group counted over 100 waterbodies within a radius of 30 km of the city. The Karnataka Forest Department had not only allotted vehicles and drivers for the counts but also lent support by taking suitable action against the poachers and trappers apprehended during the counts. One wishes the Forest Departments in other states would also follow suit, which could not only encourage and sustain the interests of the enthusiasts but also help by nabbing poachers and bird trappers, besides collecting valuable information on the status of wetlands of the region.

I have, however, one suggestion to offer. Although it was a good exercise in finding out, in depth, the state of each and every tank or wetland in a restricted area around Bangalore city, it would be better if counts in future could include large and the more important wetlands of Karnataka. Many of these are going without counts being made as only few people undertake counts in the state outside Bangalore. By including these larger wetlands, we could have a better picture of waterfowl in the state.

PANIDIHING RESERVE FOREST – STATUS AND ITS AVIFAUNA

DR. D. BAROOAH, Dass Pharmacy, P.O. Sibsagar 785 640, Assam

The river Brahmaputra with its numerous named and unnamed tributaries, riverine wetlands, flooded plains and sandy islands invites thousands of migratory birds from the palearctic region every winter. Kaziranga National Park, famous for its One Horned Rhino, is such a wetland where a large number of migratory birds take refuge every winter. Another notable site is Panidihing Reserve Forest situated just 17 km from the district HQ town of Sibsagar. My rough estimate is that not less than 20,000 birds, both migratory and resident, can be seen here from October to March every winter.

Situated on the south bank of the river Brahmaputra (27° 10'N, 94° 40'E) and comprising an area roughly of 10 x 8 km, Panidihing Reserve Forest is a grassland flooded every summer by the monsoon flood of the river. It has six freshwater shallow lakes interconnected by two slow flowing streams. The land is owned by the Forest Department of Assam; but due to utmost neglect most of its trees have already been chopped down turning the swamp forest into an open wetland. In 1985, the Government of Assam put up a few sign boards proclaiming Panidihing as a Proposed Bird Sanctuary and issued orders prohibiting shooting, but for some reasons best known to the top brasses of the Department no further development has been taken up so far.

In the winter the land is used by the nearby villagers as a pasture for their cattle and water buffaloes. The lakes and streams are leased to fishermen's cooperative societies and a few individuals. Because of the presence of man the birds are a disturbed lot. Moreover, till 1989 large scale killing of birds by firearms and netting for commercial purpose was a common sight, but since then onwards the menace has been put under control with the remarkable cooperation of the local people. But killing of birds by baiting with insecticides (FURADON) is still persisting in a lesser degree.

The place contained a pair of Rhinos and a few Otters till 1984, but at present there is no wild animal in Panidihing. Snakes like Striped Keelback, Watersnake, Banded Racer and an occasional Indian Rock Python can be seen in the monsoon flood, but as flood waters cover a vast area including village orchards, rice fields and nearby forests and grass lands it is not possible to ascertain their origins.

Out of the many waterfowl and waders present in the wetland the huge flocks of Bar-headed Geese catch the eye of any visitor during the winter. Taking part in the Mid Winter Waterfowl Census I visited the site on 17th January 1990 with Mr Prasanta Saikia a research scholar of the Guwahati University. At about 4 pm, when the sun was preparing to dip into the horizon, a bit earlier in this eastern part of the country, we were cautiously approaching a flock of about 500 Geese. The rusty coloured Rudy Shelducks were feeding in pairs around the Geese and raised an alarm whenever we became unduly noisy. Snipes flew away from seemingly lifeless mudflats with startling noise, and Egrets protested huskily at our intrusion into their feeding ground. We settled down finally in one patch of dry grass littered with the droppings of Geese and Shelducks. Prasanta unpacked his telescope, threaded it to the stand and started counting the quietly feeding Geese while I was counting the flocks of Cormorants, Egrets, Ibises and Mynas flying overhead to the tall Elephant Grass on the North East. Then I noticed a thin line of undulating ribbon approaching us from the north. I observed it with field glass when it became obvious that they were Geese but were not flying in typical V formation. I started counting. Soon their voices became audible. The 250 nos of Bar-headed Geese at first broke the line in batches and started to somersault in mid air quickly to land in and around the batch already aground. They exchanged voices excitedly and the sound ripped the silence. Batch after batch appeared from all sides of the sky and in the final count they were over 2000 in number. They continued to exchange calls in subdued tones for not less than 30 minutes, and the sound resembled an agitated bee-hive just a couple of yards away. The sight was so overpowering that we forgot to count the marks crossed by the minute hands of our wrist watches. In fact we didn't even feel the chill of the light breeze of that winter evening. By the time we finished packing to turn homewards the croaks of the Night Heron filtered through the silent night.

Apart from Geese and hundreds of Ruddy Shelducks, thousands of ducks also take refuge in waters of Panidihing. The Ruddy Shelducks are seen in pairs or in a loosely knitted batch of 20- 30. They feed in the waterline and in very shallow water but they are equally at home in undisturbed open grassland. Because of the uninhibited shooting practised earlier, the ducks are very shy and wary. They don't allow human beings even up to 300 metres. One

day in Dec 89 while I was observing a majestic Adjutant Stork *Leptoptilos dubius* struggling with a medium sized crab, a small plane appeared in the sky. Thousands of ducks took to their wings and filled the air with spectacular sound and show. Not less than 5,000 ducks were on the wing at that time.

Apart from the waterfowl a large number of waders feeding in the water-line and in very shallow waters are also present in Panidihing. Many resident birds including a batch of 50 Openbill Storks, hundreds of Purple Moorhen, Glossy Ibis, different species of egrets, herons, mynas and many cormorants, a few Darters and Adjutant Storks *Leptoptilos dubius* and *javanicus* are present in this wetland along with a few raptors.

One remarkable sighting in Panidihing on 1st April 1990 was a flock of ten Common Shelduck *Tadorna tadorna*. They were feeding in an isolated puddle of knee deep water in company with Glossy Ibises. I could observe the beautiful birds for 20 minutes. The white body with black patches and the ochre shoulder-band and the bright pink bill was unmistakable. By this time all the Bar-headed Geese had left and the Ruddy Shelducks were forming large groups on water surfaces preparing for the long journey ahead. These birds were probably passing migrants.

All together about 50 species of waterbirds have been identified by this amateur bird watcher. The true list would certainly be much larger in the hands of an experienced ornithologist. Though facilities for tourists are available in the District HQ town of Sibsagar and motorable roads extend up to the boundary of this bird haven, this wetland remains extremely neglected both by the Government agencies and nature lovers.

IDENTIFIED WATERBIRDS OF PANIDIHING R.F.

- 1 Great Crested Grebe *Podiceps cristatus*
- 2 Little Grebe *P. ruficollis*
- 3 Pelicans (unidentified species; Recent arrival)
- 4 Little Cormorant *Phalacrocorax niger*
- 5 Darter *Anhinga rufa*
- 6 Grey Heron *Ardea cinerea*
- 7 Purple Heron *A. purpurea*
- 8 Pond Heron *Ardeola grayii*
- 9 Chinese Pond Heron *A. bacchus*
- 10 Cattle Egret *Bubulcus ibis*
- 11 Large Egret *Ardea alba*
- 12 Smaller Egret *A. intermedia*
- 13 Little Egret *Egretta garzetta*
- 14 Night Heron *Nycticorax nycticorax*
- 15 Openbill Stork *Anastomus oscitans*
- 16 Greater Adjutant Stork *Leptoptilos dubius*
- 17 Lesser Adjutant Stork *L. javanicus*
- 18 Glossy Ibis *Plegadis falcinellus*
- 19 Greylag Goose *Anser anser* (Not seen in 89-90,

- perhaps due to heavy shooting in previous years)
- 20 Bar-headed Goose *Anser indicus*
- 21 Lesser Whistling Teal *Dendrocygna javanica*
- 22 Ruddy Shelduck *Tadorna ferruginea*
- 23 Common Shelduck *T. tadorna*
(passage migrant seen on 1.4.90)
- 24 Pintail Duck *Anas acuta*
- 25 Common Teal *A. crecca*
- 26 Spotbill duck *A. poecilorhyncha*
- 27 Mallard *A. platyrhynchos*
- 28 Wigeon *Anas penelope*
- 29 Gargeny *A. querquedula*
- 30 Shoveller *A. clypeata*
- 31 Common Pochard *Aythya ferina*
- 32 Tufted Duck *Aythya fuligula*
- 33 Whitebreasted Waterhen *Amaurornis phoenicurus*
- 34 Moorhen *Gallinula chloropus*
- 35 Purple Moorhen *Porphyrio porphyrio*
- 36 Pheasant-tailed Jacana *Hydrophasianus chirurgus*
- 37 Bronzewing Jacana *Hydrophasianus*
- 38 Lapwing *Venellus vanellus*
- 39 Red wattled Lapwing *V. indicus*
- 40 Spurwinged Lapwing *V. spinosus*
- 41 Redshank *Tringa totanus*
- 42 Blackwinged Stilt *Himantopus himantopus*
- 43 Brownheaded Gull *Larus ridibundus*
- 44 Indian River Tern *Sterna aurantia*
- 45 Lesser Pied Kingfisher *Ceryle rudis*
- 46 Common Kingfisher *Alcedo atthis*
- 47 Whitebreasted Kingfisher *Halcyon smyrnensis*

CORRESPONDENCE

ADJUTANT STORK *Leptoptilos dubius*
BREEDING IN NOWGAON. M. RAJ, Lecturer,
Department of Zoology, Darrang College, Tezpur 784 001,
Assam

On the 6th of March while travelling on a bus to Guwahati via Nowgaon at about 3 pm, I caught sight of a stork sitting on a nest-like structure on a *Bombax malabaricum* (simolu) tree, right in the middle of Nowgaon town. I was a bit dumbfounded as *Leptoptilos dubius* are known to breed inside Kaziranga in Assam and vigorous searches by the BNHS during the last two years for new nesting sites in Assam had proved unsuccessful. Two other points that added to the suspicion were that the nests of *Leptoptilos javanicus* are mainly seen during the months of September to December and the time 3 pm seemed a bit too early for the birds to come to roost. To confirm, I returned next day to Nowgaon and found 12 nests of Adjutant Storks in the area situated on five simolu trees, within half sq.km radius by the side of Kolong rivulet running through the middle of Nowgaon. The trees were all more than 60 ft. high and a maximum of three nests were found on a single tree, with nest platforms at different heights. The nestlings had

grown up and adults were seen spending a considerable amount of time soaring in the sky during the daytime.

Favourite places to look for Adjutant Storks in any city of Assam are the burial and refuse dumping grounds, where they are seen feeding continuously on refuse, dead animals and bones. The nests in Nowgaon were however situated away from the feeding grounds. After returning to Tezpur I visited the two burial grounds of Tezpur and found 76 Adjutant Storks. Vigorous searches in and around Tezpur for nests however proved unsuccessful. Since the Adjutant Storks remain in the cities throughout the year, such large concentrations of non-breeding individuals caters for the uncertain breeding status of the species in the region. The role of the non-breeding concentrations in the overall population dynamics of Adjutant Storks needs to be established with certainty before any firm steps are taken for the conservation of this endangered species in Assam.

HELPLESS HOUBARA. *Inayat Ullah Chaudhry ,766, Shadman I, Lahore, Pakistan*

I was invited to the Asian Crane Congress 89 at Rajkot and applied for Indian Visa about a month before the date of departure. I had sentimental plans to see my birth place; Taj Mahel, Banaras, Bombay, Delhi and important bird sanctuaries. After repeated requests to the concerned Indian Officers, the visa for Rajkot only was granted 2-3 days before departure. Friends told that this non-cooperation for visa was reciprocal between the two countries. However, Pakistani living-beings other than Homo-sapiens are extended a warm hospitality in India. Houbara is one example. It breeds in Kharan (Baluchistan - Pakistan) and is a winter visitor to India as well as Pakistan's desert areas. It is mercilessly killed by the local hunters and falconers from Middle East in its birthland-Pakistan. However, it is completely protected in India and given a VIP treatment being exempted from visa and police reporting.

Houbara was once common in the deserts and semi-deserts from Mongolia, through Middle East, North Africa up to Canary Islands. It coexisted with human beings providing a source of protein, hunting pleasure and helped to maintain the ecobalance of the fragile desert ecosystem. The Arab falconers wiped out the bird from Middle East. However, viable populations yet exist in Morocco, Algeria and USSR. Arab dignitaries started visiting Pakistan for Houbara hunt about two decades ago. Rulers of Abu Dhabi were the first to come. In the beginning they paid some respect to the law of the land and bag limit. The falconers from Saudi Arabia, Dubai and

Qatar followed suit. Then there was a keen competition to excel the bag.

In Baluchistan alone, 4000-5000 birds were killed each year. Conservationists and bird lovers felt very bitter about this massacre and they wanted to know the exact damage. WWF-P entrusted the survey of Houbara in Baluchistan to Afsar Mian, Assistant Professor of Zoology. He identified breeding areas of Houbara in Baluchistan, condition of its habitat, population status of the bird and extent of annual kill. He found that the population of Houbara in Baluchistan had decreased from 22000 birds in 83-84 to 19000 in 84-85, 15000 in 85-86, 10000 in 86-87 and 7000 in 87-88. Falconery by foreigners claimed 25% to 40% of the total population in different years. The potential for annual population increase under normal conditions was 15%. The local hunters took 5% of this increase and the safe hunting limit was 10% of the population for foreigners. In addition to falconry and local hunt, some foreigners were seen purchasing eggs at the rate of Rs.500/- per egg and chicks for Rs.2000/- each. At this rate of destruction, it is estimated, that the helpless Houbara would be extinct or near extinct in about ten years. A wise policy under these circumstances is to impose a complete ban on hunting for ten years so as to allow revival of population to 1983-84 level. After ten years, foreigners can be allowed to hunt 10% of population. 5% local hunt could be in addition which may remain unchecked. WWF explained the entire problem to the Chief Minister Baluchistan who imposed a complete ban on hunting Houbara in 1989. Due to a variety of reasons, this ban was not honoured and Houbara remains as helpless now as in the previous years.

A few years ago, the foreign falconers had gone to India for a hunt. An Indian citizen approached the Supreme Court of India, who upheld the petitioner's right and declared Houbara hunting by foreigners unlawful. This



The Helpless Houbara

helped the bird to survive in a part of its wintering area. May be, this judgement of the Indian Supreme Court, can help the bird lovers of other countries to seek similar judgements from their courts. The time devoted in search of a copy of the judgement and its mailing out would be an excellent conservation effort.

SPECIES TO LOOK FOR IN INDIA. C. Perennou
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England

We have received a copy of the report of 1989 Midwinter Waterfowl Census from the Chief Wildlife Warden, Karnataka who has emphasised the collaboration between his services and the Birdwatchers Club. We Congratulate them for the impressive results of the Waterfowl Census 1990. We are extremely keen on such collaborations between governmental and non-governmental organisations providing the census team

Species to look for in India

- Spotbilled Pelican - *Pelecanus philippensis*
: all breeding places
- Watercock - *Gallicrex cinerea* : any sighting
- Black-bellied tern - *Sterna melanogaster*
: any sighting of a group of 10 +
- Skimmer - *Rhynchops* : any record
- Darter - *Anhinga melanogaster*
: any record of 10 +
- Large whistling teal - *Dendrocygna* : any record of 50 +
- Greater adjutant - *Leptoptilos dubius* : any record
- Lesser adjutant - *L. javanicus* : any record
- Black-necked stork - *Ephippior hynchus asiaticus* : any record

Extract of Asian Waterfowl Census 1989, India Published by IWRB

Resident Species Of Waterfowl Considered Endangered Based on Four Years Data In India, By International Wetland Research Bureau, Slimbridge

Water fowl	J.K. & H.Pradesh (4)	Punjab Haryana (6)	Delhi Chandigar (6)	Uttar Pradesh (12)	Gujarat Rajasthan (199)	W.Bengal Assam (12)	Tripura Sikkim (8)	M.P. Orissa (5)	Maharashtra Andhra (165)	Karnataka Goa,Kerala (167)	Tamilnadu Pondicheri (65)	All India (649)
Spotbilled Pelican	-	-	-	-	-	7	-	21	970	150	256	1404
Oriental Darter	-	8	27	85	161	5	5	14	355	90	1	751
Watercock	9	-	-	4	27	10	4	-	30	2	-	86
Indian Skimmer	-	-	-	37	198	-	-	-	-	-	30	265
Large Whistling Teal	-	-	-	2	72	-	300	-	525	86	-	985
Greater Adjutant Stork	-	-	-	-	-	3	-	1	2	-	-	6
Lesser Adjutant Stork	-	-	-	-	4	62	-	-	8	5	-	79
Blacknecked Stork	-	7	-	8	17	-	-	3	5	4	76	120
Blackbellied Tern	-	-	1	10	4	17	-	-	67	6	30	135

Note : Figures in Brackets = No. of Wetlands visited during the Census.

with facilities such as vehicles, accommodation, and field equipment.

Among interesting records, I noticed the Greater Spotted Eagle, which has almost disappeared from South India. I discovered a regular wintering site for 2-3 of them in Kaliveli lake, close to Pondicherry, from 1986 to 1989. I am including a list of waterbird species which, after 4 years of data, we feel might be endangered in the Indian sub-continent. We think it would be interesting to keep detailed records of them and may be write a synthesis on them, or at least especially look for them during future mid-winter census.

We do hope that the data gathered and our international synthesis will help to raise the wetlands conservation issues in India.

ROAD ACCIDENTS TO VULTURES AND ROLE OF PARAPET WALL. Satish Kumar Sharma
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Dungri, Jaipur 302 004, India

While studying road accidents to birds on NH11 from 88 to 93 km stone in Bharatpur district and NH8 bypass road and nearby few city roads on the outskirts of Jaipur city, I came across an interesting phenomenon of accident to *Gyps bengalensis* in two different situations on the road (see Table-1).

Gyps bengalensis is a scavenger species. Whenever some wild or domestic animal is trampled under a vehicle on the road, it is scavenged upon by vultures. While they are engaged in scavenging, they sometimes become victims of accidents. If it is a clear road i.e., not bordered by parapet walls at the scavenging spot, they escape on either side of the road. But, when the scavenging spot is boarded by

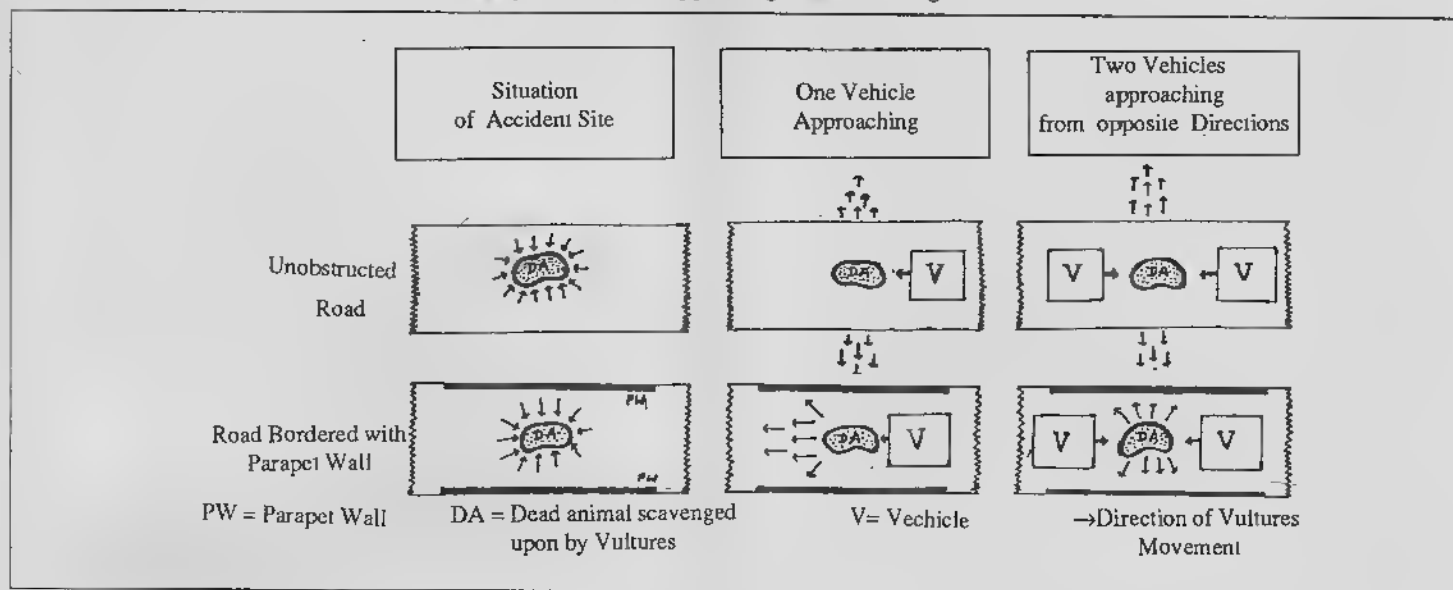
Fig 1. Escaping Patterns of *Gyps bengalensis* During Road Accidents

Table 1
Road accidents to Vultures on two highways in two different situations

District	Name of Road	Situation on Road	Month	Number of		
				Accident	Casualties	Casualties per accident
Bharatpur	NH11 88-93 km	Unobstructed	6/1980	1	1	1
		"	7/1980	1	1	1
		"	8/1980	1	1	1
		"	10/1980	2	3	1.5
		"	11/1980	2	2	1
		"	2/1981	2	3	1.5
		"	3/1981	1	2	2
		"	4/1981	1	2	2
Jaipur	NH8 Bypass & few city roads (approx. length 12 km)	"	8/1988	1	1	1
		"	1/1989	1	1	1
Total				13	17	1.3
Bharatpur	NH11 88-93 km	Obstructed with parapet stone walls	9/1980	1	4	4
Jaipur	NH8 Bypass & few city Roads	"	2/1989(i)	1	2	2
			(ii)	1	6	6
Total				3	12	4

parapet walls and side escaping is not possible due to obstruction of walls, then there are a number of casualties. If two vehicles approach at same time from opposite directions, it proves fatal to the birds.

Design for a safe parapet wall

Besides engineering point of view, biological aspects

should be kept in mind while raising parapet walls on roads, which pass through a sanctuary or National park. Perforated parapet walls are helpful in this regard. Hence, sufficiently wide perforations should be incorporated in them to enable animals to escape from traffic.

RECORD OF SOME BIRDS FROM BANDHAVGARH NATIONAL PARK PREVIOUSLY UNRECORDED IN THIS AREA.

Hashim Tyabji

Location : North-Eastern segment of Madhya Pradesh along the eastern end of the Vindhya range. Co-ordinates: 23°30' to 23°46' N and 80°46' to 81°11' E.

Vegetation : The park falls within the Moist, tropical deciduous zone. The dominant tree is Sal (*Shorea robusta*) though large areas of the park are covered by mixed forests ranging from riparian to dry. Between 1 and 2% of the park is covered by grass, both tall and short species. These birds were recorded by me in the course of compiling a bird-list for the park. All records are from field sightings.

1. Rufousbreasted Blue flycatcher *Muscicapa hyperythra*

One female observed on 18.02.88. Description from notes: Small flycatcher about 4 1/2 inches. General aspect brown. Darker on head and upper back. Lower back and wings and tail more olivaceous. Undertail coverts and vent white. Short, indistinct buff supercilium. Forehead - brighter brown. Chin and throat - orange; breast - browner; rest of underpart muddied white. Bill - black; legs - flesh coloured. Not shy. Habit of flicking tail while calling.

Seen in mature mixed riparian forest on banks of Charanganga stream, amongst dense undergrowth.

2. Dusky Leaf Warbler *Phylloscopus fuscatus*

This bird is seen regularly through the winter in scrub growth.

3. Whitetailed Blue Robin *Cinclidium leucurum*

One male seen on 14.01.1987 in mixed forest.

4. Plainbacked Mountain Thrush *Zosterops mollissima*

One bird seen on 08.02.87 and another seen on 18.01.88.

Description from notes: Size similar to Tickell's Thrush. Olive brown above; flanks heavily barred; chin and throat speckled almost to side of face. Short eye-brow; Wing-bars? (Glimpsed when bird made short hop). Bill dark brown; legs - similar colour; Occasionally flicking tail and then slowly lowering it. Observed only in thick bamboo on hill slopes.

5. Dark-grey Bush-chat *Saxicola ferrea*

First reported in M.P. from Kanha National Park by Paul K. Newton (Newton, Breeden and Norman 1986). First recorded in Bandhavgarh on 19.12.86 and then seen in increasing numbers until the end of February 1987. In the winter of 1986-87 only birds in female plumage were recorded. In the winter of 1987-88 this bird was first seen in Bandhavgarh on 08.01.87 and then seen in much larger

numbers than the previous winter. A number of males also recorded. The preferred habitat is tall grassland; occasionally found in mixed forest. No birds seen after 05.03.88. Almost certainly a winter visitor.

6. Horsefields or Chinese Goshawk *Accipiter soloensis*

Description from notes : A very pale accipiter. Size - smaller to Shikra. Upperparts slate grey. Underparts of wings strikingly white with black tips to primaries varying in extent in different individuals. Throat and chin very pale with no mesial stripe. Rest of underparts with rufous wash fairly dark in some individuals and generally darker on flanks. Eye - orange-red.

Inhabits mixed forest and forest edge.

The first sighting of a bird of the above description was on 17.03.87. Through the summer these birds are not uncommon and though breeding is not confirmed, individuals with twigs in their beaks were observed on a number of occasions. It is not yet known how long these birds stay in Bandhavgarh but by mid-October they have all left. The first sighting for 1988 was on the 19th of March with regular and increasing sightings after that through April when I left Bandhavgarh. A number of experienced birdwatchers have also seen this species and have confirmed that it is not a Shikra *Accipiter badius* or the Sparrowhawk *Accipiter nisus*. It would perhaps be worthwhile for the BNHS to send somebody down to check this bird and confirm the record.

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COOTS AND PURPLE MOORHENS Thomas F. Martin 12/16, Edward Road, Bangalore 560 052

Most of my experience has had to do with waterfowl and birds of the marshes during my hunting years. It was only during those tapering off years that I took to an active interest in bird watching and made it a part of my favourite pursuit after retirement from service. I do make occasional trips to the countryside and make sketchy notes on my observations, but till date I have not got down to writing full fledged articles on the subject of birds other than waterfowl and marshland avifauna. However, this I shall do when time and tide permit, but in the meantime I am

enclosing two of my articles on the Bald-headed Coot and the Purpose Moorhen which may be of interest to you.

Bald-headed Coot *Fulica atra*

The Bald-headed Coot is a bird of passage in India, where it spends only the winter months. They are somewhat awkward and heavy birds on the wing, and it seems rather strange that being such clumsy flyers they should cross the lofty Himalayas and then speed onwards north for thousands of kilometers to the dreary marshes of Northern Siberia, where they have their breeding grounds.

During their sojourn in India, the Bald-headed Coots are widely distributed throughout the eastern and southern states, and are to be found in a number of the larger jheels and marshes, but generally in the clearer parts, and sometimes in the company of wild ducks and teals.

*Fulica atra*s are easily identified by their white bills, plumpy slate-grey bodies which are paler below than above, and with a blackish head and neck in contrast to the rest of the body. They have a tough crown-plate of whitish hue which extends from the base of the bill up the forehead to the crown. Their legs and feet are greenish in colour, with long scalloped flaps or lobes. This formation of the feet enables them to swim and dive extremely well, and helps them in walking easily on floating vegetation.

The Bald-headed Coots swim with a peculiar bobbing motion of the head and neck. When taking to wing, they splutter along the surface of the water with great rapidity using both wings and feet for propulsion. They are not strong flyers and seem to be more at home in the water than in the air. When alarmed or disturbed, they usually fly a very short distance and then drop as if exhausted by the exertion. When rooting for fish or in trying to evade an enemy, they swim long distances under water. They are noisy birds and make a variety of grumbling sounds; cackling and clucking utterances. Their most common call is a low sounding "kuk, kuk, kuk" which they utter quite often when feeding in flocks.

*Fulica atra*s prefer to remain in those jheels or marshes which hold an abundance of reeds and marsh grasses which offer them a good deal of protection. They tread their ways over and through tangled vegetation with ease and feed on the seeds, leaves and roots of aquatic plants. Though they prefer vegetable foods, they have an appetite for fish when occasions permit.

Bald-headed Coots are rather heavy birds for their outward appearance. The males weigh on average 565 grams, with the females touching 480 grams. Lengths vary

from 33 to 31 cms. They are habitually slow flying birds with speeds seldom exceeding 20 km an hour, but when spotted as a single high flying bird in frantic search for others of its clan their speed quite often appears to be of the order 60 kph, but such demonstrations of higher speed are a rare sight.

The Purple Moorhen *Prophyrio porphyrio*

The Purple Moorhen seen in our surroundings are native waterbirds. Their favourite haunts are those low-lying wetlands which hold a fair amount of water and somewhat heavy in the form of rushes and reeds, in particular those marshes and jheels which hold a good spread of hogla (*typha elephantina*). These birds breed during the rainy season and lay about 10 eggs on average; these are broad ovals in shape, about the size of our diminutive deshi fowls eggs, with the ground a light cafe au lait (coffee with milk) blotched and speckled with sepia spots and markings. The nest is usually made in a thick clumb of reeds or rushes, and is approximately 30 cm in diameter, well raised from the water. The hen bird does most of the incubating, and if she goes away from her nest or has to leave it, she always takes care, before going away, to hide the eggs from sight, covering them up with weeds seemingly kept for the purpose. The eggs are hatched in about 21 days, and the new born mites are then tiny little black balls of down. When the mother gives the warning call, these little mites hide and do away with themselves by disappearing under the weeds and remain there with nothing but their tiny little beaks above water till the danger is over, when they pop up on every side like a number of 'jack-in-the-box' toys manipulated in quick succession.

Purple Moorhens are much like Bald-headed Coots in bodily shape, but have long slender legs, and feet which are without the flaps or lobes sported by the Coots. They have short thickset bills of an orange hue with a suffusion of cerise, and there is a hard shield or crown-plate which extends in the shape of a V from the base of the bill along the forehead to the crown. The rest of the head, neck, back and underparts are a rich dark purplish-blue, with the under tail coverts forming a white patch under the tail. The scapulars are blue tinged with greenish overtones. The legs and feet are slightly pinkish in colour.

Though a large bird, the Purple Moorhen does not weigh as much as its size suggest; the males average about 500 gms in weight, with the females slightly less at about 450 gms. Lengths vary from 35 to 38 cms. These birds, sometimes referred to as blue hens, are naturally bad flyers and seem averse to long flights.

When disturbed, they merely fly from one part of the pheel or marsh to another, and if hard pressed, will often, if weeds be plentiful, dive down and conceal themselves among the weeds and rushes. Their bad flying qualities are amply compensated by their diving capabilities, and though not web-footed, they can, where the weeds are thick, travel quite easily under water by laying hold of some of the weeds with their long claws, and remain under with nothing but their beaks above. The purple moorhen closely resembles a chicken in the way it runs with head and body extended, and when making an extra burst of speed the wings are raised seemingly for balance. Its long toes permit walking over lily pads and other vegetation, and it is equally at ease when swimming. Their legs dangle during flight and they drop awkwardly to the ground after a short trip through the air.

Purple Moorhens, even when hidden from sight, reveal their presence by two particular calls. When lying among the reeds and rushes and calling to each other, the sound they utter is a soft resonant "woo-ong, woo-ong" but when frightened or alarmed, they give vent to a loud and harsh "kain, kain". They are a good deal omnivorous in their feeding habits; grasshoppers, insects, earthworms, paddy, grain, the tender tops of aquatic plants, and the seeds of water-lilies and lotus are all included in their daily fare.

LIMITING FACTORS AND SURVIVAL MECHANISM IN BIRD REPRODUCTIVITY.

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In 'birds' which produce oviparous young from eggs laid and incubated outside their body cavity the shelled-egg itself is a mechanism by which the embryo protected within the shell survives desiccation. The success of raising chicks in birds depends not only on the vitality of the embryo but also on the number of eggs called clutchsize, brood or litter that each bird species is inherited to produce, cover and incubate. Heat or temperature is a critical factor in the incubation process and to transmit it to the eggs the brooder develops a thick patch called 'brood patch' in the adjacent abdominal region free of feathers. This patch limits the clutch size to a number that could be accommodated and adjusted within it. Eggs falling out of this area have lesser chance of development than those covered by it. Another mechanism by which incubation process is made more secure is the formation of special dense blood vessels in the thick brood patch. In every animal and bird species the capacity to produce the required number of ova or eggs is innate and it is governed by the physiological and morphological characteristics. In

'mammals' which produce viviparous young the limiting factors are the size of the uterus, body cavity and mammary glands for suckling the young. Some birds may lay definite number of eggs and no more. In a year they may lay 2 or 4 eggs and stop. Even if one or two eggs are removed from their clutch laid in the nest, they show no inclination to add to the loss. Such birds are grouped under the heading 'determinate' layers. Sandpipers and plovers come under this category. There are other birds which keep on laying when a few of their eggs are taken away from their nest. They belong to the group called 'indeterminate' layers. Before stopping they need to be convinced that the eggs laid in the nest has the proper number. This is recognised by a tactile feeling in the abdominal region. Pheasants, partridges and other game birds including domestic fowl belong to this group of indeterminate layers. By the rule of thumb the number of eggs a bird species normally lays in the wild is taken as an index to its life expectancy. Humming birds laying only 2 eggs have greater longevity. The petrel lays only one single egg and may not lay another if that is lost by chance.

Just as in birds there are two types of layers, one the determinate and the other indeterminate, their eggs also vary in size and in the amount of yolk food. In passerine birds it is observed that the yolk substance of the egg is so small in quantity that the emerging chicks are incompletely developed. These helpless chicks are blind and naked. They are called 'altricial' birds and need constant parental care and feeding until they are able to lead an independent life. For the reason that they have to remain in the nest and grow under the care of their parents the chicks are baptised as 'nidiculus'. Nesting behaviour and parental care in birds seem to have evolved together very early in the evolutionary course some millions of years before man actually appeared on earth. This ingenuity which birds learnt much earlier is remarkable. Eggs which contain more yolk food take longer time to develop and hatch but they produce active and completely developed feathered chicks called 'precocial' birds. These chicks lead independent life as soon as they come out from the eggs.

In Megapods the chicks actually fly away as they leave the incubating mounds. They do not usually require much care from their parents who normally abandon the nest before their chicks hatch. It is a kind of hidden survival mechanism quite unique to the species. The egg size may be linked with the size of the female but the inner volume itself is genetically controlled and inherited. The thickness of the shell is again one more factor which determines the inner volume as well as the survival value. For example the strong eggs of ostrich with a very thick shell can easily survive the external pressure including the pressure of the playful lions.

ON THE ROOSTING OF THE ASHY WREN-WARBLER J. Hemanth No.55/71, H.B. Samaja Road, Bangalore 560 004

Like the Neelakantans ('On the roosting of a pair of Tailor Birds', Vol. XXIX, No.9 & 10, Sept-Oct, 1989), I consider myself fortunate to have observed a non-social passerine, the Ashy Wren-Warbler *Prinia socialis* at its roosting place, though only for a few days. The bird chose the same Drumstick tree *Moringa oleifera* and the same perch on all the four days of observation i.e. the 29th of September and the 3rd, 5th and 6th of October 1987. The irregularity in its roosting at the site was something of a puzzle to me, for I could see no reason for its absence on the days in between. Another notable point was that, although they moved about in a pair, only one of them roosted at the site.

Description of the site

The site is a plot of 27 x 10 ft area with plants like Drumstick, Papaya, *Barlaria* sp., *Croton*, *Michelia sampige*, etc.. It is fenced on two of the sides and on the other two sides, it is covered by an old crumbling brick wall and the rear of our house respectively. While there is another garden beyond one end of the barbed wire, the other end has been encroached by *Parthenium*.

The roosting site

The Roosting site of the bird was a Drumstick tree which was about 10 ft. tall. The bird, curiously enough, had selected an exposed horizontal branch at a height of 5 ft. from the ground as the perch. Perhaps due to the absence of disturbance, the bird had become confident.

Activities prior to reaching the Roost

Before reaching the roost, it would usually move about on a cotton plant (this shrub was about 25 ft from the roost) restlessly for a few minutes. At this time, it would not make any call. Then, it would fly and settle down on the regular perch. On the days of its absence at the roost, I observed it flying away to some other place not near the site.

The roosting posture

After settling down, this warbler adopted one of the two types of postures given below :

- (i) To perch vertically with the head tucked in the feathers of the mantle and the tail pointing to the ground
- (ii) Same as in (i) except for the head which was held in the normal position i.e. with the bill pointing forward.

Duration of stay at the Roost

The duration of its stay at the roost was never uniform although the bird was punctual to the point of a few minutes.

Its arrival at the roost; duration of stay and departure were as follows:

On 29.9.1987, the bird arrived at the perch at 1811 hours and left the following morning at 0554 hours, thus spending total of 11 hours and 43 minutes at the roost.

On 3.10.1987, it spent 11 hours 37 minutes from 1815 to 0552 hours.

On 5.10.1987, it spent 11 hours 51 minutes (711 minutes) from 1807 to 0558 hours.

Finally, on 6.10.1987, it stayed at the perch for 11 hours 44 minutes (704 minutes) from 1814 to 0558 hours. After 6.10.1987, it never roosted at this site, which couldn't be explained.

COPULATION IN WATER BY WINTERING MALLARDS *ANAS PLATYRHYNCHOS* LINNEAUS Rajiv Singh Kalsi Department of Zoology, Punjab University Chandigarh 160 014, India

The Mallard *Anas platyrhynchos* is a winter visitor to the North-West India and breeds in the palaerctic region; sparingly in Kashmir, India (Ali and Ripley 1987, Compact Handbook of the Birds of India and Pakistan, Oxford University Press, New Delhi). Here I report copulation in water by wintering Mallards, observed during December, 1989 in the 'Sukhna' Lake, Chandigarh (76° 54' E, 30° 42' N), India. The 'Sukhna', located at the North-East edge of the city, is a fresh water lake covering an area of 229 hectares. Each year, this lake is the wintering habitat of about 12 species of migratory waterfowl. The Mallards form the biggest portion of wintering waterfowl population of the 'Sukhna' Lake.

With the male in lead, the pair to copulate separated from the feeding flock and floated in water facing each other. The male started display by moving its head vertically up and down, vigorously. This was followed by the female displaying in a similar manner. After displaying 9-10 head movements, the female turned to bring her rear in front of the male. The male mounted the female and effected copulation. The female due to weight of male was submerged in water during copulation, with only crown and beak visible. After dismounting, the male swam in an arc around the female during which the former kept its head, bill and neck stretched forward, in line with the body.

WAKING TIME OF SOME BIRDS IN KUMAON HILLS. H.S.A. Yahya Lecturer, Centre of Wildlife & Ornithology Aligarh Muslim University, Aligarh 202 001

Under the aegis of Centre of Wildlife and Ornithology Aligarh, the World Pheasant Association (India) has conducted a pheasant survey in Ranikhet and Nainital regions of the Kumaon Hills. The survey was conducted between 27th March and 16th April, 1990. Altogether 12 persons were involved in the survey.

We used to rush to a prefixed point at about 4.30 hrs (freezing and cloudy) and listen to the early morning calls of pheasants to ascertain their numbers and plotting the calls and direction of bird on a map with the help of magnetic compass (details in WPA news letter). Besides other records, I kept a note on the first call (Waking calls) of some birds which were distinctly identified (Table 1). It appears that like birds in the plains and forests (Yahya,

1987) the birds in hills are also very regular in their roosting timings. Saiduzzafar (1978) has also mentioned about the chronological time sense in some birds.

'Sleep' in humans has been a fascinating subject of research but very little is known about the roosting behaviour of birds specially of Indian birds. It is a very interesting behaviour of birds and largely determines the daily chore of a bird (Yahya, 1987). It is hoped that this small note prompts some worker to undertake this study on a more systematic and long term basis.

References

- Saiduzzafar, H. 1978. Chronological time-sense in birds *Newsletter for bird watchers*, 18(1) : 8.
- Yahya, H.S.A. 1987. Roosting behaviour of barbets. In *Recent Trends in Ethology in India* Ethological Society of India, Bangalore.

Table 1.
1st call timings of birds recorded at Kilberi (Nainital), average of six mornings

S.No.	Bird sp.	Vocalization	1st calling Time
1.	Common Hill Partridge	Single low whistling and could confused with Hawk-Cuckoo if not listened carefully	15 hrs
2.	Whitecrested Kaleej Pheasant	Chuckles soft <i>chewenk chewenk</i> , at the slightest disturbance	0555 hrs
3.	Koklas Pheasant	Loud <i>Koka kok....</i> repeated 3-4 times carefully listened can be confused with Jungle Crow of the region	0525 hrs
4.	Large Hawk-Cuckoo	Like the common Hawk-Cuckoo but fainter and at times monosyllabic	0515 hrs
5.	Collared Pigmy Owlet	Whistle like <i>toot-tootoot toot</i>	0505 hrs but can be heard in most parts of the night
6.	Great Himalayan Barbet	<i>Pihoo Pihoo.....</i> repeated continuously for 2-3 minutes and several birds in the area joins	0545 hrs
7.	Jungle Crow	Louder and harsher than the jungle crows of the plains	0555 hrs

Cover : INDAIN WREN WARBLER *Prinia subflava* (Young), is common in cultivation. Its strong legs help in climbing about stems to keep a relentless check on a wide variety of insect pests.

Photo by S.Sridhar

Editor : ZAFAR FUTEHALLY, 'Moitaka', Bear Shola Road, Kodaikanal 624 101

Printed and published by S.Sridhar at Navbharath Enterprises, Seshadripuram, Bangalore 560 020, for Private Circulation only